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GROWTH IN SELECTED CROPS OF THE RABI SEASON IN AGRICULTURAL DEVELOPMENT IN KARNATAKA

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Abstract:- The harvesting period of Kharif crops starts at the end of monsoon, i.e., September to October (may continue till November in some cases), and the Rabi crops are generally harvested from March to April (may continue till May in some cases). There are two crops which occupy the field almost the whole year. These are Sugarcane and Pigeon-Pea. Sugarcane is sown after considerable preparation of the land in the month of April or May and harvesting begins in January. Pigeon -Pea is sown in the month of July and is harvested in February or March. Since this study is based on selected food crops, therefore, it would be worthwhile to examine their relative position with respect to area, production and yield. The crops selected are: Rice, Ragi, Jowar, Bajra, Maize, Wheat, Other Cereals, Gram, Tur, Other Pulses, Groundnut, Sugarcane and Cotton.

Keywords: agricultural development , Rabi Season , Sugarcane and Pigeon-Pea.

INTRODUCTION

Before analysing the cropping pattern and growth levels in respect of area, production and yield of selected food crops in Karnataka, it would be worthwhile to preface this study with some basic ideas about crops, their sowing and harvesting seasons. There are two main crop seasons in Karnataka viz., Kharif or the season of summer crops, and the Rabi or the season of winter crops. Therefore, sowing in Karnataka, in the Kharif season begins generally on the onset of southwest monsoon in mid-June, while the Rabi season starts at the beginning of cold weather season, i.e., at the end of October or early November, when the monsoon has receded. The main food crops grown in Kharif season are: Rice, Ragi, Jowar, Bajra, Maize, Pigeon-pea, Green gram, Black gram, Groundnut, and Sugarcane. These crops require high temperature and plentiful supply of water. The food crops of Rabi season are: wheat, Lentils, Barley, Bengal gram, Peas, Tur, Cotton and Patatoes. These crops require cool weather and moderate supply of water.

In order to ascertain the crop intensity in each district during the period under study the area under thirteen major crops were added up into four distinct broad categories identifying as Cereals, Pulses, Oilseeds and Cash Crops. the total average area under specific heads, i.e., Cereals, Pulses, Oilseeds and Cash crops and their proportion to the sum of area under all the crops., that in four districts of the state a major portion of cropped area is dominated by Cereals, the share being more than 80 percent of the cropped area; among these four districts, three districts, namely, Dakshina Kannada (including Udupi), Kodagu and Uttar Kannada belong to the Malnad area. The other four districts of the state namely, Bangalore Urban, Bangalore Rural, Shimoga and Hassan have areas ranging from 70 to 80 percent under cereals. These two sets of districts constitute about one-third area of the state under cereals. Next in four districts, the area under cereals ranges between 60 and 70 percent. Most of these districts represent the northern Maidan and some part of Malnad. There are four other districts where cultivation of cereals ranges between 50 and 60 percent. Among the remaining three districts, show the cultivation of cereals over an area of between 40 and 50 percent of the cropped land. In the districts of Bellary and Bidar the cultivated area under cereals is slightly less than 40 percent.

(I) WHEAT

The increase in area under wheat varies between the value of 0.15 percent in Dharwad (including Gadag and Haveri) and 37.50 percent per annum in Bangalore (Urban) district (Fig 5.27). Besides these two extreme variations, four districts namely, Bangalore (Urban), Chitradurga (including Davangere), Raichur (including Koppal) and Bellary account for an upward trend of more than 5 percent per annum. About three districts show the trend values in upward direction between 2 to 5 percent and remaining two districts possess growth in area of less than 2 percent. The declining trend in area is more pronounced in the districts of Tumkur (-35.24 percent), Kolar (-30.42 percent), Mysore (including Chamarajangar) district -20.47 percent and Bangalore Rural (-15.00 percent). There are two of the remaining districts namely, Gulbarga (-1.74 percent) and Hasan (-1.18 percent) where the downward trend is less than -2 percent per annum.

As regards production, that out of twenty districts four districts indicate an upward trend and the next 12 districts show a downward trend in the production under wheat cultivation and the remaining four districts did not produce the wheat crop. This tendency of increase in production varies from 3.18 percent in Hasan to 175.00 percent per annum in Bangalore Urban district. Among the districts having positive trend, there are two districts having growth rate below 5% i.e., Chikmagalur (4.08 percent) and Chitradurga (including Davangere) 4.18 percent per annum. The declining trend in production is more pronounced in the district of Tumkur (-37.97 percent), Bangalore Rural (-35.71 percent), Shimoga (-30.44 percent) Mysore (including Chamarajangar) (-18.99 percent), Kolar (-15.55 percent), Gulbarga (-14.56 percent), Raichur (including Koppal) -12.05 percent, Bijapur (including Bagalkot) (-11.35 percent) and Dharwad (including Gadag and Haveri) (-9.87 percent). There are three districts namely, Bellary (-5.30 percent), Belgaum (-5.21 percent) and Bidar (-1.92 percent) where the downward trend is less than -6 percent per annum.

There are six districts where an upward trend in yield can be seen, four districts have not grown. Wheat crop but in remaining ten districts there is a negative trend ranging from -0.50 percent per annum in Kolar to -15.80 percent in Chikmagalur district. The highest growth trend is seen in the districts of Hasan (65.00 percent), Raichur (including Koppal district) 22.26 percent, Shimoga (11.94 percent), Bangalore Rural (5.15 percent), Tumkur (4.03 percent) and Bangalore Rural (3.52 percent). The declining trend in area is more pronounced in the district of Chikmagalur (-15.80 percent), Bijapur (including Bagalkot) (-14.45 percent), Chitradurga including Davangere (-10.45 percent), Gulbarga (-10.51 percent), Dharwad including Gadag and Haveri (-9.91 percent), Mysore including Chamarajanagar (-7.44 percent) and Belgaum (-7.13 percent), and there are remaining three districts where the downward trends is less than -5 percent per annum.

Wheat cultivation is subject to three important conditions : (i) June to October rainfall, (ii) Winter rainfall of November to February, and (iii) Irrigation. Rainfall of the pre-sowing season determines the level of conserved soil moisture on which the crop can be sown. Rainfall of the winter months exerts a direct beneficial influence during the growing season, and irrigation finally determines its yielding capacity. With the application of high-yielding varieties and necessary inputs yields of 4 to 6 tonnes are possible in irrigated areas. Late sowing should be discouraged and storage losses should be minimized by the control of the storage pests.

(II) Other Cereals

Some of the districts in the state show an upward trend in area under other cereals cultivation. This is clearly seen in the districts of Bangalore Urban (98.32 percent), Chikamagalur (83.50 percent), Mysore including Chamarajangar (33.07 percent), Mandya (32.28 percent), Hasan (29.98 percent), Belgaum (15.67 percent) and Kolar (5.68 percent). The declining trend in area is more pronounced in the districts of Tumkur (-15.12 percent), Bijapur including Bagalkot (-14.11 percent), Raichur including Koppal (-11.61 percent) and Bidar (-13.60 percent). There are four districts namely, Bangalore Rural, Chitradurga (including Davangere) Shimoga and Belgaum. where the downward trend is between 7 to 8 percent, and in one district i.e., Dharwad (including Gadag and Haveri) the downward trend is less than 4 percent per annum. The remaining three districts had not produced the crop of other cereals.

As regards trends in production, there appears a close correlation between production and trends in hectare. The upward trend is maintained in the districts of Bangalore Urban, Mandya, Hasan, Bidar, Gulbarga and Belgaum. There are altogether six districts which show an upwards trend, and the eleven districts exhibit a downward trend, whereas the remaining three districts had not produced the crop of other cereals.

The declining trend is more pronounced in the districts of Raichur including Koppal (-25.83 percent), Shomoga (-25.12 percent), Tumkur (-20.56 percent), Bijapur (including Bagalkot) (-15.40 percent), Mysore including Chamarajanagar (-13.31 percent) and Kolar (9.52 percent). An another set of four districts display the growth trend between -3 and -9 percent and remaining district i.e., Bellary shows -0.64 percent per annum.

The trends showing yield are rather more interesting. With few exceptions (districts of Bangalore Rural, Bellary and Raichur including Koppal), almost all districts have an upward trend varying from 3.09 percent in Chikamagalur to 28.07 percent in Bidar district. The significance of upward trend in case of yield is worth

mentioning. The districts which show a downward trend as well as slow growth rate have significant increase indicating an upward trend in yield per hectare.

(III) Gram

The trends in area under Gram are comparatively positive in two-thirds (fourteen) of the total districts and the remaining four districts indicates a downward trend. Remaining other two districts had not produced Gram crop. High trends in area are recorded in the district of Chikamagalur, Bangalore Urban, Kolar, has an, Uttar Kannada and Bellary where they exceed more than 20 percent per annum. A group of five districts namely, Gulbarga, Shimoga, Chitradurga (including Davangere), Bijapur (including Bagalkot), Tumkur and Bidar indicates the values of growth ranging between 5 and 20 percent per annum. Another set of two districts shows variation of trend in area under Gram ranging from 3 to 5 percent.

The downward trend is much pronounced in this district of Raichur including Koppal (-5.91 percent), Bangalore Rural (-8.25 percent), Mysore including Chamarajanagar (-10.07 percent) and Mandya (-21.46 percent). As regards the production trends of Gram, it is seen from that though most of the districts show low level of Gram production, but they have maintained positive trends. The districts which followed an upward trend in respect of area are the districts which show an upward trend in production. There are altogether eleven districts where the direction of trend is upward and the values range from 1.95 percent in Bijapur (including Bagalkot) to 34.24 percent in Bangalore urban. A negative trend is recorded by a set of seven districts namely, Mandya, Kolar, Bidar, Uttar Kannada, Bangalore Rural and Tumkur; and the trend varies from -3.72 percent in Tumkur to -21.34 percent a year in Mandya. Among the districts showing upward trend, the districts of Bangalore Urban, Hasan, Chikamagalur, Bellary, Chitradurga (including Davangere) Gulbarga, Dharwad (including Gadag and Haveri) and Belgaum show trend values exceeding 6 percent per annum. The trend values in two districts of Shimoga and Mysore (including Chamarajnagar) vary from 3 to 6 percent per annum and one district namely Bijapur (including Bagalkot) indicates values less than 2 percent.

The trends in yield per hectare of Gram in the state are generally in the positive direction. Only ten districts namely, Bijapur (including Bagalkot), Raichur (including Koppal), Bangalore Rural, Bellary, Kolar, Shimoga, Gulbarga, Mandya, Bangalore Rural and Tumkur indicate a downward trend, and the values of trend vary from -0.88 percent in Tumkur to -17.12 percent a year in Bijapur (including Bagalkot) district. The district of Mysore (including Chamarajnagar) shows an upward trend of 21.11 percent a year. that in all the districts farming in Belgaum, Hasan and Uttar Kannada although having relatively low yield per hectare, shows an upward direction that with the exception of Belgaum, the remaining seven districts of an upward trend of more than 2 percent per annum. However, in other districts of the state, the trend varies from 2 to 22 percent per annum respectively.

There is enough room for making substantial improvement in the yield standards of the crops. The main strategy will be to improve drainage conditions in high rainfall areas and better utilization of rainfall facilities elsewhere.

(IV) Tur

The trends in area under Tur are comparatively positive in two-fourths (eleven) of the total districts in the state and the remaining seven (i.e., one-fourth) districts indicate a downward trend. High trends in area are recorded in the district of Tumkur, Gulbarga, Uttar Kannada, Bijapur (including Bagalkot), Chikamagalur and Shimoga where they exceed more than 4 percent per annum. A group of three districts namely Mandya, Belgaum and Mysore (including Chamrajnagar) indicates the values of growth ranging between 2 and 4 percent per annum. Another one district shows the variation of trend in area under Tur ranging from 1 to 2 percent per annum i.e., Hasan (1.70 percent). In the remaining one district i.e., Bidar the upward trend is less than 1 percent per annum.

The downward trend is more pronounced in the district of Bellary (-5.16 percent), Dharwad (including Gadag and Haveri) -5.15 percent and Kolar (-10.64 percent). The remaining four districts indicate the values of negative trend ranging from -0.62 percent in Bangalore Rural to -1.95 percent a year in Bangalore Urban. Remaining other two districts had not produced Tur crop.

As regards the production trends of Tur, it is seen from that though most of the districts show low level of Tur production, but they have maintained positive trends. The districts, which followed an upward trend in respect of area, show an upward trend in production. There are altogether twelve districts where the direction of trend is upward and the values range from 0.78 percent in Dharwad (including Gadag and Haveri) to 25.67 percent in Bangalore Rural.

A negative trend is recorded by a set of six districts namely, Belgaum, Shimoga, Bidar, Bellary, Raichur (including Koppal) and Tumkur, and the trend varies from -2.16 percent in Tumkur to -15.41 percent a year in Belgaum. Among the districts showing upward trend, the districts of Kolar, Tumkur, Mysore (including Chamarajnagar), Bijapur (including Bagalkote), Gulbarga, Hassan and Chitradurga (including Davangere) show trend values exceeding 6 percent per annum. The trend values in two districts of Bangalore (U) and Mandya varies

from 4 to 6 percent per annum. Another one district-Uttar Kannada indicates value (1.69 percent) less than 2 percent a year, and remaining other two districts of the state did not produce of Tur crop.

The trends in yield per hectare of Tur in the state are generally in the positive direction. Only nine districts namely, Belgaum, Shimoga, Raichur (including Koppal), Bidar, Bijapur (including Bagalkot), Chikamagalur, Bellary, Kolar and Chitradurga (including Bagalkot), Chikamagalur, Bellary, Kolar and Chitradurga (including Davangere) indicate a downward trend, and the values of trend vary from -2.37 percent in Chitradurga (including Davangere) to -15.84 percent a year in Belgaum district. The district of Hasan shows an upward trend of 44.70 percent a year. Fig 5.30 shows that six districts forming yield per hectare an upward trend of more than 2 percent per annum and in Bangalore Rural, Tumkur and Gulbarga the yield trend is less than 2 percent per annum, remaining two districts had not produced the Tur crop.

There is enough room for making substantial improvement in the yield standards of the crop. The main strategy will be to improve drainage conditions in high rainfall areas and better utilization of rainfall facilities elsewhere.

(V) Other Pulses

The trends of area, production and yield under Other Pulses (i.e., Pulses except Gram and Tur) are low in comparison to Gram and Tur in Karnataka. As regards the area about two-fourth (ten) districts indicate an upward trend. The variation of trend in area under Other Pulses ranges from 0.50 percent in Bangalore (rural) to 24.93 percent in Gulbarga district. However, in two districts of Gulbarga and Uttar Kannada the trends are more than 5 percent per annum in upward direction. In a set of three districts i.e., Bijapur (including Bagalkot), Dharwad (including Gadag and Haveri) and Bidar indicate the trends of Growth varying between 3 and 5 percent per annum. The remaining five districts of the state exhibit the growth trends of less than 3 percent per annum.

A downward trend is indicated in ten districts, varying from -0.61 percent in Dakshina Kannada (including Udupi) district to -15.02 percent in Kodagu. Among these, four districts of Chitradurga (including Davangere), Shimoga, Bellary and Bangalore Urban show the negative trend varying from -2 to -9 percent. However, in the remaining six districts the trend follows values less than -2 percent per annum.

As regards the production trends under Other Pulses, that an upward trend is indicated in eight districts, varying from 5.59 percent in Raichur (including Koppal) to 147.67 in Bangalore Urban. Among these, six districts Mysore (including Chapiaranagar), Hasan, Gulbarga, Bangalore Rural, Chikamagalur and Uttar Kannada show the positive trend varying from 7 to 14 percent. A downward trend is indicated in twelve districts, varying from -0.08 percent in Tumkur to -31.30 percent in Bidar. Among these, six districts of Shimoga, Dakshina Kannada (including Udupi), Bijapur (including Bagalkot), Mandya, Kodagu and Bellary show the negative trend varying from -2 to -21 percent. However, in the remaining four districts the trend follows values less than -2 percent per annum.

The trends indicated by yield per hectare under other pulses comparable in some cases with that of trends in area and production. The comparisons of upward trends in area, production and yield can be made in the districts of Bangalore Rural,

Chikamagalur, Mysore (including Chamarajnaragar), Hasan and Uttar Kannada. The highest values of trends in yield are recorded by the district of Bangalore Urban (163.26 percent), Chitradurga (including Davangere) 14.49 percent, Chikamagalur (11.59 percent), Bangalore Rural (9.40 percent) and remaining five districts show the positive trend varying from 5 to 9 percent. However, in the other remaining five districts the trend follows values less than 5 percent per annum. The downward trend is indicated in six districts, varying from -1.86 percent in Belgaum to -34.25 percent in Bidar. Among these, four districts i.e., Dakshina Kannada (including Udupi), Gulbarga, Bijapur (including Bagalkote), Gulbarga, Bijapur (including Bagalkot) and Bellary show the negative trend varying from 1 to 19 percent per annum.

CONCLUSION:

It will thus be seen, that in the regions of 2 crop-combinations, Ragi and Groundnut was a common component in three districts and Rice and Other Pulses was a common component in remaining three districts. Among the four districts representing 3 crop combination, three of them show Rice and Pulses as the common components. In the regions of 4 crop - combination Ragi, Rice, Maize were associated with Groundnut in Chitradurga (including Davangere) district and in case of Shimoga district Groundnut replaced by Cotton. In five crop combination regions, Jowar and Groundnut were common components in three districts forming the northern maidan region. In the Mysore (including Chamarajnaragar) district Rice, Ragi, Other Pulses, Jowar and Cotton as the common components. In six crop combination regions, Jowar, Cotton, Groundnut and Rice were common components in two districts forming northern maidan region first in the Hasan district Rice, Ragi, Other Pulses, Sugarcane, Jowar and Groundnut crops are common components of six crop combination and last in the Bangalore Urban district Ragi, Rice, Other Pulses, maize, Groundnut and Tur constitute the most common crops.

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